

SYSTEM AND METHOD FOR CO-PRODUCTION OF HYDROGEN AND ELECTRICAL ENERGY

ABSTRACT

[0045] A system for co-production of hydrogen and electrical energy comprising a reformer configured to receive a reformer fuel and steam and produce a reformat rich in hydrogen. The system further comprises a separation unit in fluid communication with the reformer wherein the separation unit is configured to receive the reformat to separate hydrogen from the reformat and produce an off gas. The system also includes a combustor configured to receive a fuel for combustion and produce heat energy and a hot compressed gas, wherein the combustor is coupled with the reformer. A gas turbine expands the hot compressed gas and produces electrical energy and an expanded gas; wherein at least a part of the heat energy from the combustor is used to produce the reformat in the reformer.